*A Dissertation on*

# ANORECTAL SEPSIS

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# CERTIFICATE

This is to certify that **Dr. M. SATHEESH KUMAR** Post -Graduate Student (July 2003 to September 2006) in the Department of Surgery, Kilpauk Medical College, Chennai- 600 010, has done this dissertation on **"ANORECTAL SEPSIS "** under my guidance and supervision in fulfillment of the regulations laid down by the Tamilnadu Dr.M.G.R. Medical University, Chennai, for

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# CONTENTS

# INTRODUCTION

Acute Anorectal sepsis is a common general surgical emergency. Simple perianal & ischiorectal abscesses are assessed and treated in the emergency department.

Drainage alone can be performed as an outpatient procedure where there is a 15-47% incidence of recurrent abscess and subsequent fistula –in-ano. Drainage with fistulotomy can also be performed as the initial modality of treatment.

Early drainage is important as the anorectal abscesses may be complicated by necrotising fascitis.

Anorectal abscess can also be a manifestation of an underlying colorectal disease such as Crohn's disease, Ulcerative colitis and neoplasms of the rectum or may complicate trauma or specific infections. Anorectal sepsis is more prevalent if host defence mechanisms are impaired, as in AIDS, malignant disease, diabetes mellitus and blood dyscrasias or as a result of drug therapy.

# AIM OF THE STUDY

The aim of this study was to study the following patterns of the disease in patients admitted with a dignosis of anorectal abscess at Government Royapettah Hospital, Chennai.

- Epidemiology of the disease
- Aetiology and risk factors for the disease
- Presentation of various types of anorectal abscesses
- Common types of anorectal abscesses
- To evaluate the adequacy of Incision & drainage alone in the treatment of anorectal abscesses.
- Causative organisms and their relationship with fistula formation.
- Incidence of Fistula –in-ano following incision & drainage of the abscess
- Recurrence of anorectal abscess following treatment
- Healing time following surgery.

# ANATOMY OF ANORECTAL ABSCESS

The anal walls are surrounded by a complex tube of sphincters which tighty occlude the anal canal except during defaecation. The muscular components are divisible into the internal and external anal sphincters and pubrorectalis muscle which is a part of levator ani. There are also longitudinal muscle components forming the conjoint longitudinal coat.

**Sphincter Ani Internus ( Internal Sphincter ):**

The sphincter ani internus is a thickened tube of circular smooth muscle representing a thickening of the rectal musclaris externa. It encloses the upper three-quarter (30mm) of the anal canal, extending from the anorectal junction down to the white line which marks its lower border.

**Sphincter Ani Externus (External Sphincter):**

The sphincter ani externus is a tube of skeletal muscle situated externally to the muscularis externa and surrounding the whole anal canal. It is usually described as consisting of three parts. These are, from superior to inferior, the deep, superficial and subcutaneous parts.

**Puborectalis:**

The puborectalis, the most medial portion of levator ani, a band of muscle which loops posteriorly around the anorectal junction, slinging it forwards towards the pubis; some of its fibres mingle with those of the deep part of the external sphincter while others join the longitudinal muscle of the anal canal to from the conjoint longitudinal coat.

**The Conjoint Longitudinal Coat:**

The conjoint longitudinal coat is a fibromuscular layer surrounding the anal canal and situated between the internal and external sphincters. It is formed at the anorectal junction by the fusion of the pubococcygeal fibres of levator ani with the longitudinal layer of the rectal muscularis externa. Distally, this layer is increasingly fibro-elastic; at the white line it breaks up into 9-12 circumferential septa which radiate outwards mainly through the subcutaneous part of the external sphincter to become attached to the dermis of the circumanal skin. These septa are composed largely of elastic fibres; the most peripheral of the septa extend between the subcutaneous and superficial parts of the external sphincter into the ischiorectal fat.

**Anal Glands:**

Anal glands lie between the internal and external anal sphincters; they communicate with the anal mucosa by ducts which arise from the anal valves at the dentate line. The ducts may terminate in the submucosa or ramify in the internal anal sphincter, but they usually communicate with an anal gland or other ducts in the intersphincteric plane. Some acini of the anal glands may run up or down the intersphincteric plane, but they do not normally penetrate the external sphincter.

Most individuals have six glands, the majority lie in the submucosa and they rarely penetrate the external sphincter. The majority of the anorectal infections arise from an infected anal gland, resulting in a chronic intersphincteric abscess.

# AETIOLOGY

Anorectal sepsis can be classified into primary or secondary based on the aetiology.

**Primary Anorectal Abscess:**

Anorectal abscesses occur either as a complication of an anal gland infection (crypto glandular) or from a skin infection.

Cryptoglandular infections often result in a chronic intersphincteric collection, which may drain down through the perineum, extend upwards into the supralevator compartment or spread across the sphincter into the ischiorectal fossa. Cryptoglandular infections are caused by intestinal organisms and are invariably associated with an internal opening. Consequently drainage often results in the creation of a fistula between the skin and the anal mucosa at the dentate line.

Alternatively, anorectal sepsis may be caused by an infected boil, furuncle or carbuncle around the anal canal. These skin infections are usually staphylocccal in origin and are not usually associated with an internal communication at the dentate line, hence drainage does not result in a fistula.

It has been suggested that cultures of pus from an anorectal abscess may identify which collections are cryptoglandular in origin. Sometimes perianal infection may be due to obstruction of an apocrine gland and if so, there may be signs of hidradenitis else where.

**Secondary Anorectal Abscess:**

Perianal abscesses are occasionally caused by a specific microorganism, the most frequent of which is tuberculosis. Other specific infections include legionella, actinomycosis, amoebiasis, nocardiosis, schistosomiasis and a variety of fungal infections.

**COLORECTAL DISEASE:**

**<u>Inflammatory bowel disease:</u>**

The most common coloproctological disorder complicated by sepsis is Crohn's disease. Any anatomical site may be involved, but supralevator abscesses are more frequent in crohn's disease. Less common is the association between perianal sepsis and Ulcerative colitis.

**Colorectal Neoplasms :**

There are three main groups of adenocarinoma associated with anorectal sepsis. The first are rectal carcinomas which extend widely into the perianal tissues and outgrow their blood supply, resulting in necrosis and sepsis. These are associated with a poor prognosis and occur predominantly in the elderly. It is therefore important to biopsy any suspicious perianal abscess in elderly patients and to perform a careful examination under anaesthesia.

The second category are those tumours which occur in association with an anal fistula. These are often slow-growing. In some of these cases there is a tumour situated proximally in the rectum and it has been suggested that the tumour cells may be seeded into the fistula. Some of these tumours represent malignant change in a congenital reduplication and some epidermoid carcinomas arise from anal glands.

Finally, there are those rare tumours which are associated with hidradenitis and arise from apocrine glands. Other malignant tumours associated with anorectal sepsis include carcinoids and primary lymphoma of the anorectum.

**Anorectal Trauma:**

Other causes of perianal sepsis include local trauma, penetration from foreign bodies inserted into the rectum and other objects passing through the bowel. Occasionally repeated enemas may be complicated by sepsis occurring due to local trauma.

**Perianal Disorders:**

There are a variety of perianal disorders, or their treatment, which may also become complicated by sepsis. These include ruptured anal haematoma, thrombosed haemorrhoids and the anal fissure. Perianal sepsis may also complicate haemorrhoidectomy, injection or band ligation.

**Other Pelvic Disorders:**

Conditions which may be responsible for supralevator (pelvic) abscess include salphingitis, Crohn's or diverticualr disease, large bowel carcinoma, penetrating injuries, orthopaedic conditions, urological disorders and the complications of acute appendicitis.

**GENERALIZED DISEASE:**

**Pancytopenia:**

Acute leukemia, thrombocytopenia and other neutropenic states; those receiving chemotherapy, and those with an immunocompromised state such as patients on immunosuppressive drugs may develop a rather unusual form of perianal sepsis. Features consist of perianal pain, fever and a tense, fluctuant swelling often without any evidence of pus. If there is a tender perianal swelling without pus, the surgeon should take a biopsy and examine the peripheral blood film. Drainage of these lesions is usually not advised. Treatment should include the use of broad spectrum bactericidal antibiotics, as well as tackling the underlying haematological disorder.

**Diabetes:**

Any patient with anorectal sepsis may have occult or established diabetes mellitus. Indeed this may be the first presenting feature of diabetes.

**AIDS:**

Severe perianal sepsis causing marked tissue destruction may be one of the initial presentation of AIDS. In AIDS patients, recurrent sepsis and failure to respond to conventional therapy is a common feature. Furthermore metastatic sepsis and severe necrotising gangrene is now a well recognised complication particularly in AIDS patients with low CD4 counts.

**Therapeutic Agents:**

Steroids and other drugs which interfere with normal cellular and humoral defence mechanisms increase the risk of anorectal sepsis.

**Other Diseases:**

Other general disorders associated with anorectal sepsis include hypertension, heart disease, obesity and chronic alcoholism.

# CLASSIFICATION AND ANATOMICAL SITE

Anorectal sepsis is classified according to its anatomical site; the most common are perianal and ischiorectal abscesses.

Perianal abscess is almost indistinguishable from a low intermuscular abscess.

A high intermuscular abscess is relatively rare and extension to form a suprasphincteric abscess is also uncommon. Most suprasphincteric abscesses are secondary to pelvic rather than anal pathology. High supralevator abscess may be subdivided into retrorectal, rectovesical, pelvirectal and retroperitoneal types.

# PATHOGENESIS AND SPREAD

All cryptoglandular abscesses start from an intersphinteric abscess following infection in an anal gland.

In the majority of cases the infective process extends downwards towards the perianal region and the conjoint longitudinal muscle prevents any lateral extension through the external anal sphincter.

In a few cases, the infective process advances cranially resulting in a high intermuscular abscess or even a supralevator abscess.

The infection may, however advance towards the lumen of the anal canal along the track of the anal duct, resulting in a submucous abscess.

The pathogenesis of ischiorectal abscess is less well defined. In some patients the intermuscular collection extends laterally through the conjoint longitudinal muscle and through the lower fibres of the external anal sphincter into the ischiorectal fossa. In others, the infection extends caudally in the intermuscular plane and then around the lower border of the external anal sphincter into the ischiorectal fossa. In a few patients a supralevator

abscess may burst through the fibres of the puborectalis into the ischiorectal fossa. Finally, the ischiorectal fossa may become infected following an episode of septicaemia from a distant focus.

Once the abscess has become localised to a specific anatomical site, further extention may take place around the anal canal. Circumferential spread is particularly common in the ischiorectal fossa. Circumanal spread may also occur in patients with an intermuscular abscess and occasionally, in perianal abscesses as well.

# PATHOLOGY

An abscess in the perianal region results from bacterial infection of the loose areolar tissue around an anal gland. There is often extensive tissue damage and necrosis. Enzymes capable of breaking down protein molecules are released from pus, resulting in osmotically active particles which attract fluid into the infective process.

Spontaneous discharge of pus is prevented by histiocytes, platelets and fibroblasts which stimulate the formation of a fibrous capsule, localising the infective process. Granulation tissue also helps to localise the infective process. The presence of osmosis from protein breakdown and chemotaxis results in considerable tension within the abscess, causing necrosis and small vessel thrombosis.

Histologically, there is a pus-filled cavity surrounded by granulation tissue and fibrosis. There are often focal aggregates of histiocytes forming foreign body granuloma in the surrounding inflammatory reaction. New blood vessels, some of which are occluded by fibrin thrombi are seen in the periphery. The peripheral tissues are compressed and there may be areas of focal necrosis.

# NATURAL HISTORY

Recurrent sepsis and fistula is a prominent feature of anorectal sepsis unless initial surgical treatment is adequate. The risk of recurrent abscess and fistula is very variable. The chance of recurrent abscess or fistula is low if fistulotomy is performed at the time of drainage instead of mere drainage alone.

Recurrence has been attributed to:

1. Failure to identify an internal opening.
2. Inadequate assessment of the extent of the abscess, resulting in incomplete drainage.
3. Spontaneous rupture of the abscess so that a proper examination under anaesthesia was never performed.
4. The presence of an underlying disorder, such as Crohn's disease, AIDS, Tuberculosis.

In few patients, anorectal sepsis may progress, if not treated adequately, to spreading extraperitoneal cellulitis which can be fatal, particularly in diabetic or immunocompromised patients.

In some patients, anorectal sepsis will resolve completely without surgical intervention.

Most patients who give a history of spontaneous discharge with no further symptoms probably have an anal furuncle which is not cryptoglandular in origin.

# CLINICAL FEATURES

Approximately 20-40% of patients give history of a previous episode of anorectal sepsis which has spontaneously discharged or required surgical drainage. In children the presentation and microbiology is similar but there is a higher incidence of primary pathology such as agranulocytosis, infectious disease, Crohn's disease or thread worms.

**Perianal Abscess:**

Pain, swelling and localised tenderness are the hallmarks of a perianal abscess. Pain is often throbbing in nature and aggravated by coughing, sitting and defaecation. The skin over the abscess is erythematous and swollen and the collection of pus is well localised around the skin of the anal verge. Perianal abscess is rarely complicated by constitutional disturbances. The swelling is usually ovoid, tender and fluctuant. Digital examination is very painful but there is no evidence of intrarectal swelling. Circumanal extension of a perianal abscess is uncommon and most cavities are posterior or lateral. Sometimes, a perianal abscess bursts spontaneously, with relief of pain and disappearance of swelling.

**Ischiorectal Abscess:**

Clinical features of ischiorectal abscess are less well defined. Fever is more common and associated with constitutional disturbances. The swelling is much more diffuse, and tends to involve the entire perianal region. Examination reveals a vague area of swelling beside the rectum but bulging into the anal canal is unusual. Bilateral involvement to form a horseshoe abscess occurs by posterior spread into the ischiorectal fossa of the opposite side. There may be considerable tissue necrosis due to pus under tension in the relatively avascular ischiorectal space.

Sometimes a collection high in the ischiorectal fossa may be associated with no clinical signs at all. These high collections are commonly due to an extension of a supralevator abscess and there may be signs of a pelvic abscess.

**Intersphincteric And Submucosal Abscesses:**

Intersphincteric abscess is usually associated with no visible evidence of sepsis. Patients present with perineal pain and fever. In some cases there is a history of spontaneous discharge with the passage of foul-swelling pus through the anus. Digital examination is very painful and may be possible only under an anaesthetic.

There is usually a diffuse swelling confirmed to one sector of the upper anal canal but circumanal extension may result in an extensive intersphnicteric collection which is poorly localized. There may be an associated submucosal abscess owing to pus tracking towards the anal canal along an anal gland; however, this is usually small, involving less than one – third of the circumference of the anus.

**Supralevator Abscess:**

Supralevator abscess either arises as an upward extension of an intersphincteric collection or represents a true pelvic abscess due to conditions such as appendicitis, salphingitis, diverticulitis, Crohn's disease, malignancy or a ruptured pelvic viscus. There is usually a mass high up in the pelvis, identifiable by bimanual rectal or vaginal examination.

# INVESTIGATIONS

All patients presenting with anorectal sepsis need a careful examination, including proctosigmoidoscopy under general anaesthetic. This is not uniformly accepted as anorectal abscesses are often treated as an outpatient procedure under local anaesthesia.

Thorough assessment is important, both to identify the presence of an internal opening and to ascertain the extent of the infective process, particularly any supralevator or intersphincteric component.

Pus should be sent for culture at the time of drainage, particularly if an internal opening cannot be identified. If Staph. aureus is identified, a second EUA is probably unnecessary since the chance of a missed internal opening is then remote. If, on the other hand cultures reveal gut specific organisms, there is a strong possibility of a fistula. Under these circumstances, a second EUA 7-10 days after drainage may be worthwhile since fistulas associated with an anorectal abscess can be identified at this second examination.

Anorectal ultrasound has been used for defining the precise location of anorectal abscesses and may be used as an alternative to fistulography. However, endoanal ultrasonography lacks the ability to image beyond the external sphincter, and therefore cannot reliably identify a perianal, ischiorectal or supralevator abscess.

MRI is very effective for identifying the anatomical site of sepsis. MRI is the investigation of choice in all complex anorectal sepsis to delineate the precise anatomy of the sepsis.

# DIFFERENTIAL DIAGNOSIS

Anorectal sepsis must be distinguished from other potentially painful infective conditions of the anorectum and perineum, particularly anal fissure, a thrombosed haemorrhoid, Bartholin's abscess, hidradenitis suppurativa and periurethral abscess. Malignancy and inflammatory bowel disease may mimic anorectal sepsis. Specific infections should also be excluded particularly tuberculosis, fungal infections, schistosomiasis, amoebiasis, leprosy, syphilis, gonorrhoea & AIDS.

# TREATMENT

## PRINCIPLES

### Antibiotic Therapy:

Antibiotic treatment alone probably has no influence on the natural history of anorectal abscess unless this complicates pancytopenia. More importantly, antibiotics many delay surgical treatment.

Antibiotics may be used during surgical drainage in order to avoid an episode of septicaemia and they are definitely advised in patients with valvular disease of the heart or those with a prosthetic implant. They are also advised in patients who require extensive surgical debridement for synergistic infection of the perineum, and in diabetics.

### Primary Closure Or Drainage With Or Without Antibiotic Therapy:

The argument for primary closure is that primary healing is common, further dressings are unnecessary and morbidity is low provided there is no internal opening. However, the antibiotics did not influence healing times.

Although healing times were shorter using primary suture, it has been abandoned since it has a high recurrence rate and a high incidence of wound breakdown despite the use of antibiotics.

**Drainage Alone Or Synchronous Fistulotomy:**

There is still a wide difference of opinion as to the desirability of immediate fistulotomy if an internal opening is identified.

Some surgeons take the view that the abscess should he merely drained under general or local anaesthetic. The argument in favour of this policy is that the incidence of fistula is low and that division of muscle in the presence of established sepsis may lead to excessive sphincter loss and impaired continence. It is argued that if a fistula does develop there is less potential sphincter loss if the track is laid open or excised as an elective procedure.

The counter argument is that the incidence of fistula and recurrent abscess following drainage alone is high and that synchronous fistulotomy avoids a second admission to hospital. Laying open a fistula at the time of drainage prevents fibrosis and the gutter deformity which may complicate later fistulotomy. Another aspect of the argument is that cryptoglandular infections

are usually secondary to an intersphincteric abscess and that division of the internal anal sphincter allows more efficient drainage and a lower risk of recurrence.

## MANAGEMENT OF SPECIFIC ABSCESSES

### Perianal Abscess;

A careful examination under anaesthetic, using antibiotic to cover to prevent an episode of bacteremia. If an internal opening is found, this should be laid open at the time of drainage by dividing the internal sphincter below the dentate line and leaving the entire cavity open. Abscess should not be probed for a fistula since this is likely to create a false passage.

If the cultures grow a faecal organism, a second EUA by an experienced person should be arranged 7-10 days later. If a fistula is found it should be laid open, provided the anatomy of the track can be accurately defined; If not, a seton should be inserted.

### Ischiorectal Abscess:

The overriding consideration in ischiorectal abscess is early drainage of pus since there is a large potential space with a high risk of progression to a horse shoe abscess or even synergistic necrotising infection.

If faecal organisms are identified, a second EUA is advised, usually 2-3 weeks later, to determine if there is a trans-sphincteric fistula, a suprasphincteric extension or even an extrasphincteric or suprasphincteric fisluta .

The lowest incidence of recurrent sepsis in patients with an ischiorectal abscess and horse shoe extension was reported in patients treated by incision, counter-drainage and either fistulotomy or seton division of the fistula track.

**Submucosal Abscess:**

Submucosal abscess alone is an uncommon form of anorectal sepsis. A submucosal abscess should be drained internally by excising the mucosa over the bulging abscess. If there is no internal opening, the abscess may be treated by excising the mucosa alone. If an internal opening is present, a long internal sphincterotomy is advised.

# COMPLICATIONS

## Synergistic Gangrene:

Necrotising infection secondary to anorectal abscess is fortunately rare. It is more common in patients with an ischiorectal abscess but the diagnosis is often delayed. Predisposing conditions include diabetes, obesity, chronic illhealth, steroid therapy and chemotherapy for malignant disease. Complications resulting from the necrotising fascitis around the anus include gas gangrene, sterility, faecal incontinence , recurrent anorectal fistula and septicaemia.

Treatment involves wide excision of all necrotic material in the perineum, extensive surgical drainage, antibiotic therapy and nutritional support; a proximal stoma is often necessary.

## Recurrence:

It invariably indicates that there is a persistent unrecognised anorectal fistula or some underlying disorder, such as hidradenitis suppurativa, Crohn's disease, tuberculosis or AIDS or a missed carcinoma.

**Free Floating Perineum :**

Occasionally an extensive horse shoe abscess which presents late or in immunocompromised patients may result in extensive circumferential sepsis around the anorectum. The condition may be complicated by synergistic gangrene. Huge volumes of pus occupy the ischiorectal fossa and anterior triangle.

Treatment is by extensive debridement, multiple counter – drainage incisions and a proximal stoma.

# REVIEW OF LITERATURE

**Goligher et al (1967)** reported the incidence of fistula in perianal abscess to be 15% in 28 patients.

**Buchan and Grace (1973)** in 133 patients found that the incidence of perianal abscess to be 39%.

**Kovalcik (1979**) had an incidence of fistula in perianal abscess of 25% (n=181).

**Grace et al (1982**) reported the frequency of various sites of anorectal sepsis in 165 patients for perianal, Ischiorectal, Intersphincteric, submucous & supralevator abscess to be 70% , 25%, 0, 5%, 0 respectively.

**Whitehead et al (1982)** had an incidence of 84%, 16% 0,0,0 for perianal, ischiorectal, intersphincteric, submucous and supralevator abscesses respectively in 135 patients. The incidence of internal opening in 72 patients was 44%.

**Chrabot et al (1983)** reported the incidence of recurrent abscesses in various sites as follows (n=97): perianal – 18% Ischiorectal – 28%, Intersphincteric – 44%, submucous – 0 and

supralevator abscess – 10%. The incidence of fistula at the above sites were 42%, 68%, 100% 0, 57% respectively.

**Vasilevsky and Gordon (1984)** in 117 patients had a frequency of anorectal sepsis at various sites to be 19%, 61%, 18%, 0, 2% for perianal, ischiorectal, intersphincteric, submucous and supralevator abscesses respectively.

**Ramanujam et al (1984)** in 1023 patients had a distribution of sites as Perianal – 43%, Ischiorectal – 22% Intersphincteric – 21%, submucous – 6% and supralevator abscess – 7%. The incidence of fistula was 35%. The frequency of internal opening according to the site of sepsis were as follows: Perianal-34%, Ischiorectal- 25%, intersphincteric – 47%, supralevator – 42% and submucous abscess -15%. The risk of recurrent abscess and fistula according to the method of treatment was: Unroofing only – 4%, Drainage and laying open of fistula 2%, secondary fistulotomy – 3%.

**Eykyn and Grace (1986)** found a significantly higher incidence of gut specific bacteria in patients with fistula: Staphylococcus aureus : 1 Vs 8 (Fistula Vs no fistula); Streptococcus milleri 22 Vs 1; other streptococci 18 Vs 9;

Escherichia coli 45 Vs 5; Proteus species 12 Vs 0; Klebsiella species 6 Vs 0; Gut specific bacteroides 62 Vs 5; other bacteriodes 63 Vs 49. The incidence of internal opening in 80 patients was 66%.

**Winslett et al (1988)** in 233 patients reported the incidence of abscess at various sites to be penianal – 62% Ischiorectal-24%, Intersphincteric – 5%, submucous – 2% and supralevator abscess – 7%. The incidence of underlying disease in anorectal sepsis were as follows: Crohn's disease -9, Diabetes Mellitus – 6, Infective diarrhoea – 3, Rectal carcinoma – 2, Villous adenoma -2, sickle cell disease -1, ulcerative colitis-1.

**Schouten and Vroonhaven, 1991** in a randomised trail compared drainage and immediate fistulotomy against drainage alone. The recurrent sepsis rates were 3% and 41% respectively . A high proportion of drainage alone patients required second surgery.

**Tang et al (1996)** in a prospective randomised trail compared the drainage alone versus drainage and fistulotomy for anorectal sepsis. Three of the 21 patients having drainage alone developed recurrent anorectal sepsis requiring another operation, compared with none of the 24 patients having fistulotomy at the time of drainage. Furthermore, there were no patients with

impaired continence in the drainage and fistulotomy group compared with one patient with flatus incontinence in the drainage alone group.

**Ho et al, 1997** in a similar randomized trial compared drainage alone and drainage with primary fistulotomy. A fistula was discovered in 24 of 28 patients and laid open at the initial operation. 7 of 28 patients in the drainage group developed a fistula later. There was no incontinence in either group.

# PATIENTS AND METHODS

All the patients admitted in surgical wards of Government Royepattah Hospital for anonectal sepsis were included in the study.

The study period was from 2003 to 2005. All the patients with clinical features of anorectal abscess were admitted for the study.

A thorough and detailed history was taken to delineate the possible aetiologies and the associated systemic or local disease.

The patients were then evaluated with blood sugar, basic renal function tests, X ray chest and ECG.

Complete and meticulous physical examination was done to evaluate any aetiological factors, associated systemic or local cause, clinical features and complications.

Patients were initially typed based on the anatomical site of the abscess: swelling within the external sphincter as perianal abscess; outside the external sphincter as ischiorectal abscess and submucous abscess with the patient symptoms. A gentle Digital rectal examination was attempted if the patients symptoms

suggested a submucous abscess. No investigation was sought further.

All the patients with clinically palpable swelling with or without signs of anorectal sepsis and diagnosed or suspected to have submucous abscess were taken up for Incision and Drainage or Examination Under Anaesthesia.

**OPERATIVE PROCEDURE**

**Incision and Drainage:**

Under local or Intravenous anaesthesia, with a broad spectrum antibiotic cover, incision and drainage done by a liberal cruciate incision over the prominence of the swelling. All the loculi were broken with the finger. The pus was sent for microbial culture.

The cavity was then washed with hydrogen peroxide and saline. The cavity was then packed with povidone iodine gauze and a sterile dressing was done.

**Post Operatively:**

The gauze pack was removed, the next morning and sterile dressing done. The patient was thereafter advised sitz bath three

times a day. Patients were mostly discharged on the 3rd post operative day unless they needed inpatient management for the sepsis or associated systemic or local illness.

**Follow Up:**

Discharged patients were advised to continue sitz bath three times a day and advised to review after 2 weeks and every week thereafter.

The patients were evaluated for the recurrence of abscess, fistula formation and the healing time of the surgical incision. Complete skin cover of the incision site was taken as healed.

**Limitation :**

i. There was a very high dropout rate after the initial treatment.
ii. Facilities for a detailed examination for the internal opening (fistula) was often not available in the emergency set up.
iii. The second examination under anaesthesia was practically often not feasible.

# OBSERVATIONS

**Epidemiology:**

The sex incidence of the study at Government Royapettah Hospital showed that overwhelming majority of our patients with anorectal sepsis were male. The ratio was 8:1 is favour of males.

The peak incidence in males was in the age group 31-40 years with about 80% patients belonging to 21-50 years of age. Females has peak incidence in 21-30 years and all the patients were between 21-50 years of age.

The incidence of anorectal sepsis depicts a seasonal variation with a significantly higher incidence in summer (June-September). About 42% of the total cases presented during the above months.

**Site of anorectal abscesses:**

The distribution of anorectal abscess in the study is as follows:

| | | |
|---|---|---|
| Perianal abscess | : | 47 patients ( 52%) |
| Ischiorectal abscess | : | 37 patients (41%) |

Submucous abscess : 6 patients (7%)

Left sided abscesses were in general more common than the right; 57 (63%) Vs 33 (37%).

About 84 patients (93%) had their abscesses laterally placed in relation to the anal canal and 6 patients (7%) had their abscess posteriorly placed.

**Presentation of various types of anorectal abscesses:**

**Perianal abscess:**

Pain was the prominent feature in all cases of perianal abscess. Difficulty in sitting and walking were other prominent features. Fever and constitutional symptoms were present only in a minority of patients.

**Ischiorectal abscess:**

Fever, pain and constitutional symptoms were the most presenting features. The swellings were diffuse and less well marked then perianal abscesses.

**Submucous abscess:**

Pus discharge through the anus and painful defaecation were the predominant complaints. Perineal pain and fever was also seen in some patients.

**Associated Systemic / local causes:**

4% of admitted patients (4 patients) had recurrent abscesses and 9% had a fistula associated with the abscess (8 patients). 75% of patients (6 patients) with fistula had a previous perianal abscess and 25% (2 patients) had a previous ischiorectal abscess.

17 out of 90 patients were found to be diabetic (3 patients – known already, 14 patients - newly diagnosed). One had been diagnosed previously to have AIDS and one another was a Tuberculous patient on treatment.

**Healing time :**

The mean healing time of the incision and drainage site was 4 weeks.

**Incidence of fistula after drainage of the abscess:**

5 out of 42 patients (12%) developed fistula on follow up: 80% of them (4 patients) had perianal abscess before and 20% (1 patient) had ischiorectal abscess before.

**Incidence of Recurrent abscess after drainage:**

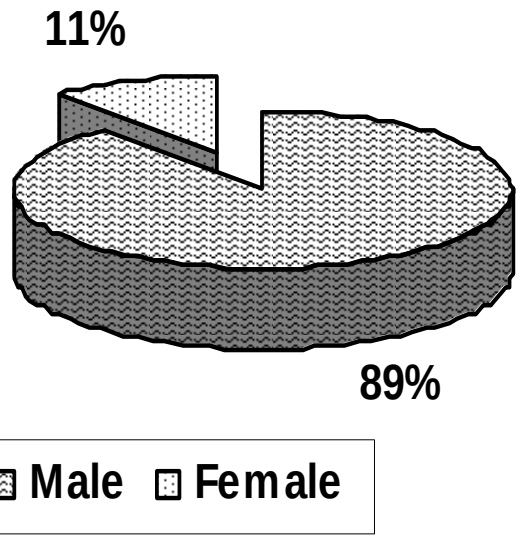
4 out of 42 patients (9%) developed recurrent abscess after drainage . 2 Patients (50%) had recurrence of perianal abscess and another 2 patients (50%) had recurrence of ischiorectal abscess.

**Causative organisms and their relationship with recurrent abscess or fistula:**

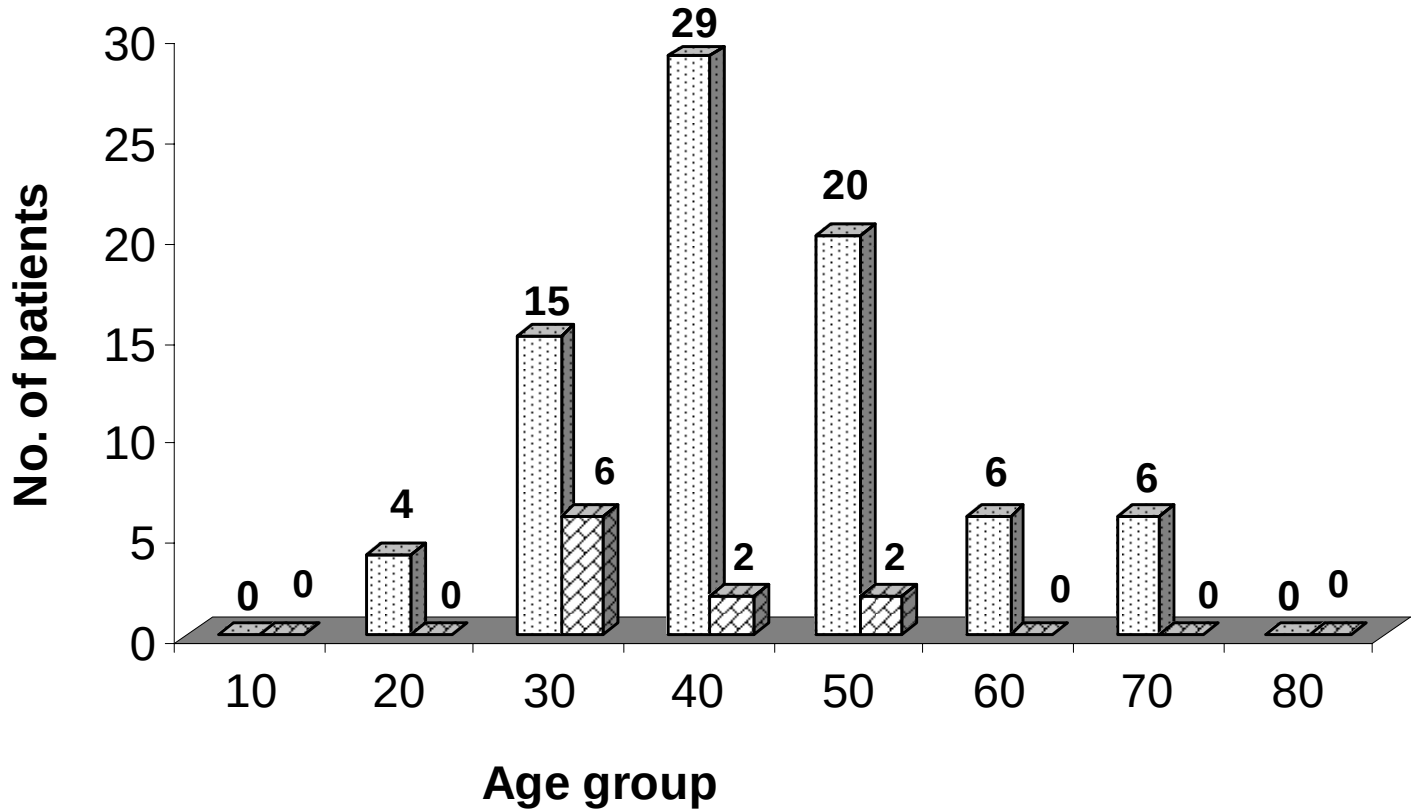
Of the 90 patients, gut specific bacteriae signifying cryptoglandular origin of anorectal abscess were found in 69 patients (77%). Staphyloccous aureus signifying skin origin was isolated in 21 patients (23%).

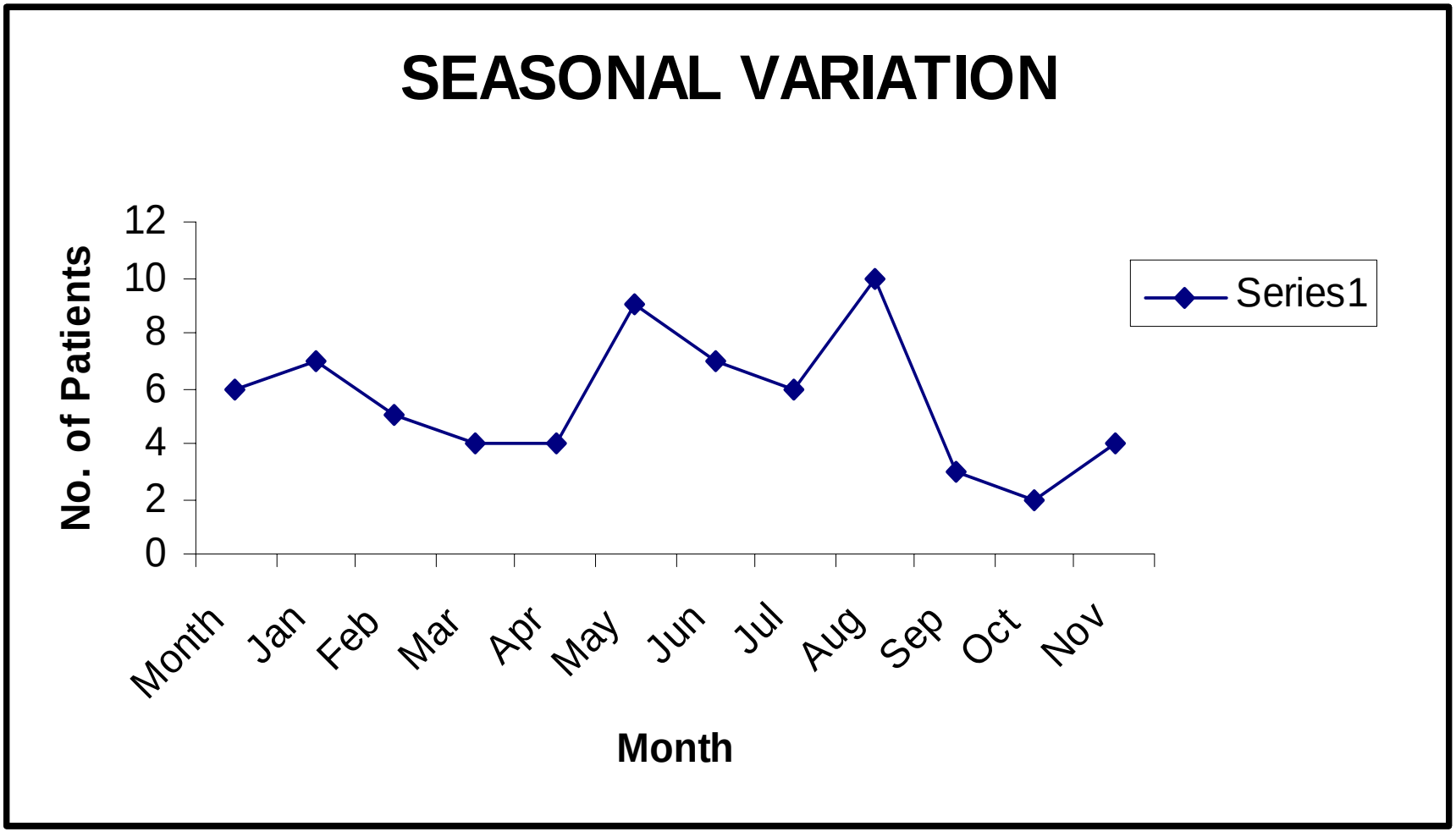
8 patients in the cryptoglandular origin group developed recurrent abscess or fistula compared with only 2 patients in the skin origin group.

# SEX INCIDENCE

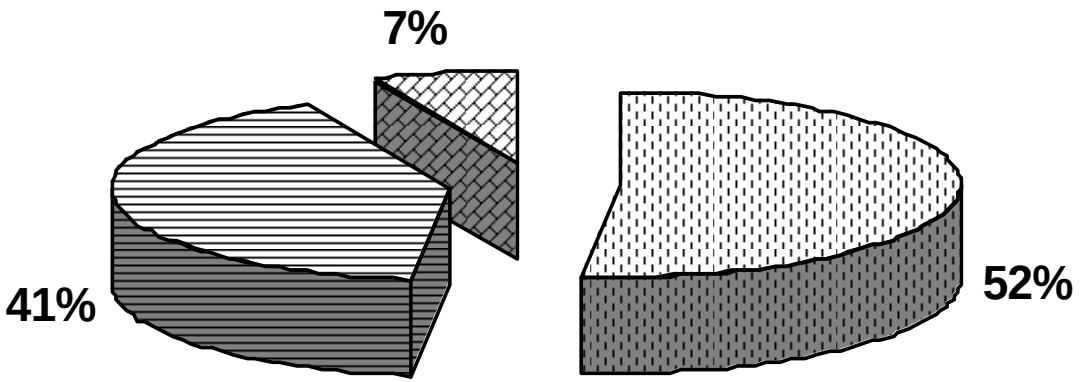


# AGE AND SEX INCIDENCE

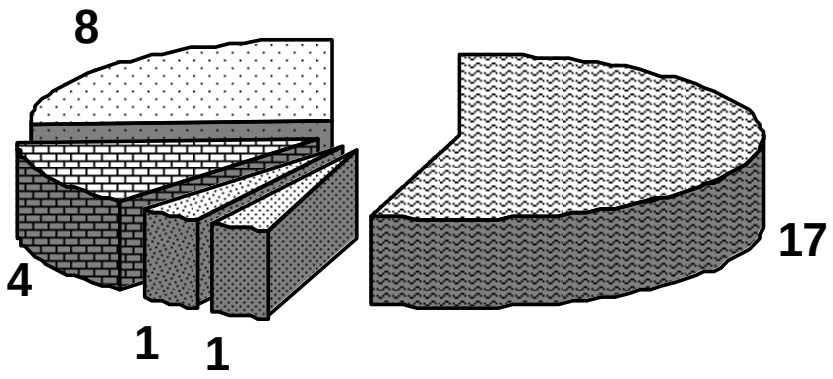



SEASONAL VARIATION
No. of Patients
12
10
8
6
4
2
0
Month
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Month
Series1

# SITE OF ANORECTAL ABSCESSES



# ASSOCIATED ILLNESS




Diabetes mellitus AIDS Tuberculosis Recurrent abscess Fistula

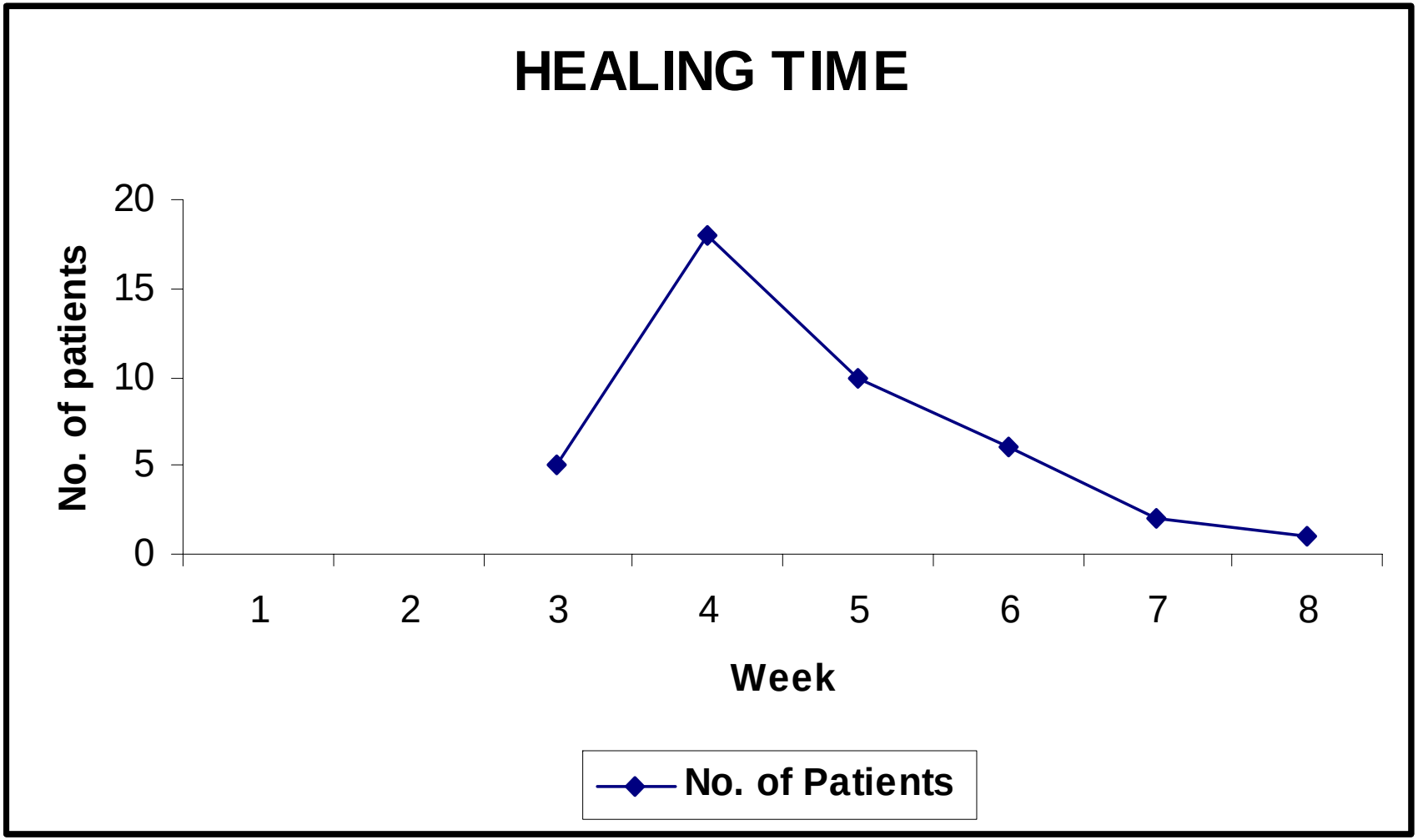

HEALING TIME
No. of patients
20
15
10
5
0
1
2
3
4
5
6
7
8
Week
No. of Patients

**Table -1**

**Incidence of Fistula after incision & drainage**

| Site Of Sepsis | n | Fistula |
|---|---|---|
| Peri anal | 23 | 4 |
| Ischiorectal | 16 | 1 |
| Submucosal | 3 | 0 |

**Table -2**

**Incidence of recurrent abscess after incision & drainage**

| Site of sepsis | n | Recurrent abscess |
|---|---|---|
| Peri anal | 23 | 2 |
| Ischiorectal | 16 | 2 |
| Submucosal | 3 | 0 |

**Table -3**

**Causative organisms and their relationship with recurrence**

| Organism | n | Fistula | Recurrent abscess |
|---|---|---|---|
| Staph. aureus | 21 | 0 | 2 |
| Gut specific bacteria | 69 | 5 | 3 |

# DISCUSSION

The results of the study reflect the pattern of anorectal abscesses treated in our hospital.

The anorectal abscesses showed a very definite male predilection, as with other studies. The highest incidence was found in the age group 31-40 years similar to other studies. The increased incidence in elderly patients was not seen here.

Similar to other studies, there was a significantly higher incidence during the summer season.

Perianal abscess was the most common anorectal abscess; which was the case in most other studies, followed by ischiorectal and submucosal abscess. Left sided and laterally placed abscesses were more common.

Diabetes mellitus was the most common underlying disease whereas the Crohn's disease and Ulcerative colitis were not encountered as a cause of anorectal sepsis. Tuberculosis and AIDS were also found to be an underlying disorder in some patients.

The mean healing time was 4 weeks which was similar to other studies. The healing time was much better if the patient had no underlying disease and his general condition was good.

The incidence of internal opening in the west in patients having drainage of anorectal abscess was 15%-66%, whereas only 12% of our patients developed fistula on follow up. This could be explained as the lower incidence of secondary anorectal abscess and also the poor follow up.

Perianal abscess had a increased incidence of fistula than the ischiorectal abscess.

The incidence of recurrent abscess was equal after drainage of perianal and ischiorectal abscesses. The reported incidence of recurrent ischiorectal abscess in the west was more than the perianal abscess.

Gut specific organisms were a common cause of anorectal abscess than the Staphylococcus. The former signified an increased incidence of fistula in ano. The incidence of fistula was low if staphylococcus was isolated.

# SUMMARY AND CONCLUSIONS

- Anorectal abscess occurred most commonly in the second and third decades of life. Overwhelming majority of our patients were males. A significantly higher incidence of anorectal abscesses were seen in summer.
- Proper diabetic control and good personal hygiene may decrease the incidence of secondary anorectal abscess and the skin origin of the disease.
- Perianal and ischiorectal abscess were the most common types encountered.
- Perianal abscess is associated with less fever and other constitutional symptoms compared to the ischiorectal abscess.
- Incidence of fistula-in-ano was significantly higher if gut organisms are encountered and it is wise to do a second examination under anaesthesia.
- Recurrent abscess is more common with ischiorectal abscess and hence a proper incidence and drainage becomes necessary.
- Healing time was much better for patients with good general condition and without any underlying disease.

The conventional, incision and drainage as practiced in our institution is associated with a reasonably acceptable fistula rate. Also, the poor compliance of patients and the practical difficulties in performing a second examination under anaesthesia makes incision and drainage the only appropriate option available at present.

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# PROFORMA

Name :

Age :

Sex :

Ip No :

Date of Admission :

Date of Discharge :

**Symptoms**

1. Pain
2. Swelling
3. Fever
4. Difficulty in routine activities
5. Painful defaecation
6. Pus discharge per rectum

**Past History**

Previous similar illness

Known TB/HT/DM

Chronic Drug Intake

**General Examination**

Temperature

Pulse rate

Respiratory rate

Blood pressure

**Local examination**

**Per Rectal Examination**

**Investigation**

1. Haemoglobin %
2. Bleeding time
3. Clotting time
4. Blood sugar
5. Blood urea

6. Serum Creatinine
7. X-ray chest
8. ECG

Time of Discharge :

Organism Isolated ;

**Follow up**

1. Healing time
2. Recurrence

| Sl.No | Name | Age | Sex | IP.No | Presentation | Site of Abscess | | | Systemic / local illness | Hospital stay (Days ) | Organism | Healing time (Weeks) | Recurrence |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side | Position | Type | | | | | |
| 1 | Periyasamy | 30 | M | 793245 | Pa, Sw, Pd | Lt | Ll | P | | 2 | St. | 4 | |
| 2 | Karthick | 19 | M | 793990 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | | L |
| 3 | Arumugam | 52 | M | 794258 | Pa, Sw, Da | Lt | Ll | P | DM | 2 | G | 4 | |
| 4 | Dhanapal | 40 | M | 796377 | Pa, Sw, Pd | Rt | Ll | P | | 2 | St. | | L |
| 5 | Sekar | 30 | M | 796911 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | 3 | |
| 6 | Nayoom | 39 | F | 797870 | Pa, Sw, Fe | Lt | Ll | I | DM | 4 | St. | 6 | |
| 7 | Sridharan | 63 | M | 799763 | Pa, Sw, Pd | Lt | Pr | P | | 2 | G | | L |
| 8 | Jaquilin | 30 | M | 799915 | Pa, Sw, Pd | Rt | Ll | P | | 2 | G | | L |
| 9 | Selvam | 35 | M | 799985 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | 5 | F |
| 10 | Sekar | 42 | M | 800221 | Pa,Pd, Pdr | Rt | Ll | S | | 2 | G | 4 | |
| 11 | Balu | 46 | M | 800248 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | | L |
| 12 | Marimuthu | 38 | M | 800652 | Pa, Sw, Pd | Lt | Ll | P | | 2 | St. | | L |
| 13 | Mani | 44 | M | 801266 | Pa, Sw, Da | Rt | Ll | I | | 2 | G | 5 | F |
| 14 | subramani | 32 | M | 801557 | Pa, Sw, Fe | Rt | Ll | I | | 2 | G | 4 | |
| 15 | Karthikeyan | 27 | M | 801772 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | 3 | |
| 16 | Anumandhan | 57 | M | 803212 | Pa, Sw, Pd | Lt | Ll | P | PF, DM | 8 | G | 8 | A |
| 17 | Kannan | 35 | M | 803387 | Pa, Sw, Fe | Rt | Ll | I | | 2 | G | | L |
| 18 | Mahadevan | 40 | M | 803605 | Pa, Sw, Fe | Lt | Ll | I | DM | 4 | St. | 4 | |
| 19 | Antony | 35 | M | 803534 | Pa, Sw, Pd | Rt | Pr | P | | 2 | St. | | L |
| 20 | Satish kumar | 23 | M | 803553 | Pa, Sw, Pd | Lt | Ll | I | | 2 | G | 5 | |
| 21 | Palani | 47 | M | 804083 | Pa, Sw, Pd | Lt | Ll | P | DM | 6 | St. | | L |
| 22 | Radhakrishnan | 42 | M | 804347 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | | L |
| 23 | Vinodh Babu | 18 | M | 804547 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | 3 | |
| 24 | Kulanthaiappan | 30 | M | 804601 | Pa, Sw, Pd | Rt | Ll | P | DM | 8 | St. | 7 | L |
| 25 | Selvaraj | 56 | M | 804714 | Pa, Sw, Fe | Lt | Ll | I | PA | 2 | G | 4 | |
| 26 | Natarajan | 48 | M | 804718 | Pa, Sw, Pd | Rt | Ll | P | PA | 2 | G | 5 | F |
| 27 | Kishore kisan | 28 | M | 805308 | Pa, Sw, Pd | Lt | Pr | P | | 2 | G | | L |
| 28 | Suresh | 31 | M | 806515 | Pa, Sw, Fe | Lt | Ll | I | TB | 15 | G | | L |
| 29 | Mani | 40 | M | 806523 | Pa, Pd, Pdr | Rt | Ll | S | PF | 2 | G | 6 | |
| 30 | Ansar Basha | 55 | M | 806603 | Pa, Sw, Fe | Lt | Ll | I | | 2 | St. | | L |
| 31 | Arumugam | 35 | M | 807119 | Pa, Sw, Fe | Rt | Ll | I | | 2 | St. | 4 | |
| 32 | Duraisamy | 38 | M | 808858 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | | L |
| 33 | Mohan | 48 | M | 809008 | Pa, Sw, Pd | Rt | Pr | P | PF | 6 | G | | L |
| 34 | Subramani | 68 | M | 809030 | Pa, Pd, Pdr | Lt | Ll | S | | 2 | G | | L |

| Sl.No | Name | Age | Sex | IP.No | Presentation | Site of Abscess | | | Systemic / local illness | Hospital stay (Days ) | Organism | Healing time (Weeks) | Recurrence |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side | Position | Type | | | | | |
| 35 | Senthamarai | 40 | M | 809636 | Pa, Sw, Fe | Rt | Ll | I | | 2 | St. | | L |
| 36 | Sakthivel | 25 | M | 810996 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | | L |
| 37 | Govindaraj | 39 | M | 812136 | Pa, Sw, Fe | Rt | Ll | I | DM | 3 | St. | 5 | A |
| 38 | Baskar | 27 | M | 812591 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | 3 | |
| 39 | Loganathan | 45 | M | 812846 | Pa, Sw, Pd | Lt | Ll | P | PA | 4 | St. | | L |
| 40 | Thangam | 32 | F | 813545 | Pa, Sw, Fe | Rt | Ll | I | | 2 | G | 4 | |
| 41 | Sathya raj | 32 | M | 814040 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | | L |
| 42 | Kumar | 41 | M | 814057 | Pa, Sw, Pd | Lt | Ll | P | DM | 6 | St. | | L |
| 43 | Elango | 49 | M | 814286 | Pa, Sw, Pd | Rt | Ll | P | | 2 | G | | L |
| 44 | Muthu | 48 | M | 814386 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | | L |
| 45 | Venkatesan | 24 | M | 814473 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | 4 | |
| 46 | Ravi | 41 | M | 814578 | Pa, Sw, Pd | Rt | Ll | P | PF | 4 | G | | L |
| 47 | Srinivasan | 30 | M | 815565 | Pa, Sw, Fe | Lt | Ll | I | DM | 3 | G | 6 | A |
| 48 | Annadurai | 50 | M | 815593 | Pa, Sw, Fe | Rt | Ll | I | | 2 | St. | | L |
| 49 | Raja | 47 | M | 817227 | Pa, Sw, Fe | Lt | Ll | P | | 2 | G | 5 | F |
| 50 | Kumaravel | 33 | M | 817787 | Pa, Sw, Fe | Rt | Ll | I | AIDS | 10 | G | 7 | |
| 51 | Gurumoorthy | 45 | M | 818288 | Pa, Sw, Fe | Lt | Ll | I | PF | 2 | G | 5 | |
| 52 | Mnusamy | 40 | M | 818537 | Pa, Sw, Fe | Rt | Ll | P | DM | 4 | G | | L |
| 53 | Kumaresan | 30 | M | 819841 | Pa, Sw, Pd | Lt | Ll | P | | 2 | St. | | L |
| 54 | Sumangalam | 27 | F | 820310 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | 4 | |
| 55 | Rajendran | 33 | M | 820767 | Pa, Pd, Pdr | Rt | Ll | S | | 2 | G | 4 | |
| 56 | Subbaiah | 50 | M | 821075 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | | L |
| 57 | Mani | 38 | F | 821176 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | 4 | A |
| 58 | Ranganayari | 41 | F | 821292 | Pa, Sw, Pd | Lt | Pr | P | DM | 4 | G | | L |
| 59 | Natraj | 32 | M | 821601 | Pa, Sw, Pd | Rt | Ll | P | | 2 | St. | | L |
| 60 | Patraja | 20 | M | 822246 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | | L |
| 61 | Glory | 21 | F | 822259 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | 4 | |
| 62 | Kolanda Mani | 45 | M | 822403 | Pa, Sw, Fe | Rt | Ll | I | RA | 2 | G | | L |
| 63 | Raman | 36 | M | 822642 | Pa, Sw, Pd | Lt | Ll | P | | 2 | St. | | L |
| 64 | Muthupandiyan | 22 | M | 822755 | Pa, Sw, Fe | LT | Ll | P | | 2 | G | 5 | |
| 65 | Ponnusamy | 58 | M | 822762 | Pa, Sw, Fe | Rt | Ll | I | DM | 4 | G | | L |
| 66 | Sivaraman | 14 | M | 803008 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | 5 | |
| 67 | Arunachalam | 64 | M | 923381 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | | L |
| 68 | Anandharaj | 45 | M | 824059 | Pa, Sw, Fe | Rt | Ll | I | PF,DM | 8 | G | 6 | |

| Sl.No | Name | Age | Sex | IP.No | Presentation | Site of Abscess | | | Systemic / local illness | Hospital stay (Days ) | Organism | Healing time (Weeks) | Recurrence |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side | Position | Type | | | | | |
| 69 | Jaya kumar | 28 | M | 824081 | Pa, Pd, Pdr | Lt | Ll | S | | 2 | G | 3 | |
| 70 | Baskar | 36 | M | 825488 | Pa, Sw, Fe | Rt | Ll | I | | 2 | St. | 5 | |
| 71 | Vadamalai | 24 | M | 825734 | Pa, Sw, Pd | Lt | Ll | P | | 2 | G | | L |
| 72 | Narayanan | 40 | M | 825966 | Pa, Sw, Fe | Lt | Ll | I | DM | 4 | G | | L |
| 73 | sudersan | 22 | M | 825994 | Pa, Pd, Pdr | Lt | Ll | S | | 2 | G | | L |
| 74 | Susila | 30 | F | 826393 | Pa, Sw, Fe | Rt | Ll | I | | 2 | G | 6 | |
| 75 | Jeyaraman | 40 | M | 830837 | Pa, Sw, Pd | Lt | Ll | P | | 2 | St. | | L |
| 76 | Sumathy | 28 | F | 831373 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | 4 | |
| 77 | Venkatesh | 21 | M | 831638 | Pa, Sw, Pd | Rt | Ll | P | | 2 | G | 4 | |
| 78 | Venkatesan | 25 | M | 831647 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | | L |
| 79 | Srinivasan | 37 | M | 832083 | Pa, Sw, Pd | Lt | Ll | P | PA,DM | 10 | G | | L |
| 80 | Shanmugam | 35 | M | 832419 | Pa, Sw, Pd | Rt | Pr | P | PF | 2 | G | 4 | |
| 81 | Krishnan | 42 | M | 833099 | Pa, Sw, Fe | Lt | Ll | P | | 2 | G | | L |
| 82 | Selvam | 35 | M | 833115 | Pa, Sw, Pd | Rt | Ll | P | | 2 | G | 4 | |
| 83 | Srinivasan | 65 | M | 833375 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | | L |
| 84 | Ramamoorthy | 40 | M | 836949 | Pa, Sw, Pd | Lt | Ll | P | DM | 4 | St. | 5 | A |
| 85 | Narayanan | 23 | M | 837120 | Pa, Sw, Pd | Rt | Ll | P | | 2 | G | 4 | |
| 86 | Thiruveeti Ammal | 50 | F | 837480 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | | L |
| 87 | Mahu | 54 | M | 837311 | Pa, Sw, Pd | Lt | Ll | P | PF | 4 | G | 6 | |
| 88 | Ramasamy | 42 | M | 837886 | Pa, Sw, Pd | Rt | Ll | P | | 2 | G | 4 | F |
| 89 | Nagarajan | 42 | M | 838628 | Pa, Sw, Fe | Lt | Ll | P | DM | 6 | G | | L |
| 90 | Selvi | 29 | F | 838628 | Pa, Sw, Fe | Lt | Ll | I | | 2 | G | 5 | |

Pa- Pain
Sw- Swelling
Fe-Fever
Da-difficulty in routine activities
Pd- Painful Defaecation
Pdr- Pus discharge per rectum
Lt- Left
Rt- Right
Ll-Lateral
Pr- Posterior

P- Peri Anal Abscess
I- Ischiorectal abscess
S- Submucous abscess
Pf- Prvious Fistula
PA- Previous Abscess
DM- Diabetes Mellitus
TB- Tuberculosis
St. - Staphylococcus

G- Gut specific Bacteria
L- Lost follow up
A- Abscess recurrence
F- Fistula Recurrence

| Sl.No | Name | Age | Sex | IP.No | Presentation | Site of Abscess | | | Systemic / local illness | Hospital stay (Days ) | Organism | Healing time (Weeks) | Recurrence |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side | Position | Type | | | | | |